BY ORDER OF THE COMMANDER *AFSOC INSTRUCTION 21-102*
AIR FORCE SPECIAL OPERATIONS COMMAND *1 November 1999*

Maintenance

CORROSION CONTROL PROGRAM AND PAINT REQUIREMENTS

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements AFPD 21-1, *Managing Aerospace Equipment Maintenance*. It establishes policies and objectives and assigns responsibilities for implementing and maintaining an effective corrosion prevention and control program for aerospace systems, equipment, and components in AFSOC. It specifies responsibilities performed at each level of command and implements guidance presented in AFI 21-105, *Aerospace Equipment Structural Maintenance*, A series, T.O.s 1-1-691, *Aircraft Weapons Systems Cleaning and Corrosion Control*, 1-1-689, *Avionic Cleaning and Corrosion Prevention/Control*, all applicable AFOSH standards, command checklists, and the specific aircraft –23 technical orders. It establishes interior and exterior paint finishes standards for the size, location, and color of aircraft exterior markings for AFSOC aircraft by type and mission. This instruction applies to all AFSOC units having permanently assigned aircraft. This instruction does not apply to Air National Guard or Air Force Reserve units.

SUMMARY OF REVISIONS

This revision supercedes AFSOCI 21-101, 1 October 1998 and 21-102, 1 February 1995. Adds tracking aircraft washes, color of gun blast diffuser, and wash waiver criteria. Changes AC-130H placement of crew chief block and nose art. Changes size of nose art on fixed wing aircraft. Adds naming of aircraft procedures. Adds all exterior and flight deck paint finishes. Adds UH-1N AFSOC exterior markings. Delete MH-60G.

Chapter 1

Corrosion Prevention and Control Program.

1.1. **General.** A definite interrelationship exists between preventing and controlling corrosion on aerospace equipment. Corrosion will decrease with an increase in corrosion prevention. At field level, the best and most economical means of corrosion prevention is frequent cleaning in conjunction with periodic maintenance, painting (touch-up), and corrosion inspections. Prevention is the hub to an effective corrosion control program, therefore, strict adherence to corrosion prevention polices is essential. USAF technical instructions for corrosion prevention, detection, treatment, and protection furnish general guidance concerning application of the AFSOC corrosion prevention and control program. The applicable USAF or manufacturer's weapons system equipment manual will include inspection frequencies and maintenance requirements of specific weapons systems and equipment. There is no authorization to deviate from the requirements of this instruction without prior approval of HQ AFSOC/LGM. Crossflow of information is essential to the program. This instruction authorizes all program managers' direct communications with their counterparts (all echelons) on any matter pertaining to the program.

1.2. **MAJCOM Program Management Responsibilities:**

1.2.1. HQ AFSOC/LGMW is assigned Corrosion Control Manager responsibilities. In addition to the responsibilities outlined in AFI 21-105, *Aerospace Equipment Structural Maintenance*, the AFSOC corrosion manager will:

1.2.2. Review Air Force publication concerning corrosion prevention and control for adequacy and coordination with appropriate agencies.

1.2.3. Submit comments and recommendations based on experience to agencies responsible for the concept, definition, and acquisition of Air Force materiel.

1.2.4. Coordinate with Air Force Materiel Command (AFMC) on the development and testing of corrosion control techniques and materiel.

1.2.5. Communicate with Air Education Training Command (AETC) on the corrosion training curriculum. HQ AFSOC/LGMMT will coordinate on all training matters that effect the AETC-developed courses.

1.2.6. Represent the command at Corrosion Prevention Advisory Board (CPAB) for assigned weapons systems.

1.3. Wing/Group Corrosion Manager Responsibilities:

1.3.1. The wing/group commander will designate a corrosion control manager. Submit in Jan of each year, if changed: name, functional address, office symbol, e-mail address, DSN, and FAX to

HQ AFSOC/LGM. This manager will serve as the intermediate command focal point for the corrosion control program.

1.3.2. Monitor subordinate units' compliance with applicable provisions of AFI 21-105, *Aerospace Equipment Structural Maintenance,* and this instruction.

1.3.3. Ensure units develop and issue technical and administrative instruction on the AFSOC corrosion control program (i.e., aircraft washcards).

1.3.4. Review base requirements for training, facilities, equipment, and materiel to support the corrosion program.

1.3.5. Develop and submit to HQ AFSOC/LGMW comments and recommendations for improvement of the corrosion program as needed.

1.3.6. Supplement AFSOC corrosion control directives, as required, to maintain a sound corrosion control program.

1.3.7. Attend the Corrosion Prevention Advisory Board (CPAB) for assigned weapons systems.

1.3.8. Coordinate with each flying and maintenance squadron for CPAB action items and submit these items to HQ AFSOC/LGM when tasked.

1.4. Corrosion Prevention Advisory Board (CPAB):

1.4.1. AFI 21-105, *Aerospace Equipment Structural Maintenance,* authorizes a CPAB for all aircraft. The purpose of the CPAB is to investigate specific airframe corrosion-related problems, evaluate procedures, and make appropriate recommendations.

1.4.2. Membership includes representatives from AFSOC, other MAJCOMs, individual Air Logistics Centers (ALCs), and SOF wing/groups.

1.4.3. Although the CPAB is primarily advisory in nature, its findings and recommendations represent the consensus of the board members.

1.4.4. The CPAB, with AFSOC notification, may make investigative visits to AFSOC units.

1.5. Cleaning and Washing of Aircraft:

1.5.1. The Special Operations Squadron (SOS), Logistics Group (LG), and Maintenance Squadron (MXS) commanders will establish and enforce procedures and controls to ensure accomplishment of exterior and interior aircraft cleaning cycles IAW T.O. 1-1-691, *Aircraft Weapons Systems Cleaning and Corrosion Control*. Due to our units being located in severe corrosion environments and low level flights over salt water, strict adherence to scheduled aircraft washes is necessary for a sound corrosion prevention and control program. Units will provide by

letter to HQ AFSOC/LGMW a history of assigned aircraft washes by 31 Jan for the previous year. It will include at least aircraft tail number and dates (for the year) washed. This data will be used to assist in pinpointing recurring causes of corrosion. This report is designated emergency status code D IAW AFI 36-127, *The Information Collections and Reports Mangement Program; Controlling Internal Public, and Interagency Air Force Collections,* paragraph 2.6.

1.5.2. A complete exterior wash and interior cleaning will be accomplished prior to each isochronal or phase inspection.

1.5.3. After each wash, lubricate the aircraft IAW the weapons system technical order.

1.5.4. Units operating aircraft near or over salt water will develop local procedures to ensure that clear water rinse requirements in T.O. 1-1-691, *Aircraft Weapons Systems Cleaning and Corrosion Control,* are met. Units will provide a copy of their procedures to HQ AFSOC/LGM for use in cross talks and command-wide dissemination of ideas.

1.5.5. All AFSOC aircraft stationed in severe corrosion environments will have a complete after-wash corrosion inspection by structural maintenance personnel.

1.5.6. All C-130 squadrons will ensure the urinal area of their aircraft is cleaned and inspected at each Basic Post Flight (BPO) and aircraft wash. This is a corrosion prone area requiring constant attention. Pay particular attention to corrosion prone areas identified in 1C-130A-23, *System Peculiar Corrosion Control USAF Series C-130A/B/D/E/H/N/P Aircraft*.

1.5.7. Units eligible for wash interval waivers must submit waivers IAW T.O. 1-1-691, *Aircraft Weapons Systems Cleaning and Corrosion Control,* to HQ AFSOC/LGMW to forward to AFRL Robins AFB, GA/MLS-OLR for final approval. Waivers will expire one year after approval is granted. Each year a new waiver is required.

1.6. Contract Aircraft Cleaning Services:

1.6.1. For organizations utilizing a performance contract: the LG/CC or MXS/CC will establish local inspection requirements to ensure the provisions of the contract services are met. Use the customer complaint system (reference AFMAN 64-108, *Service Contracts*) to identify deficient services.

1.6.2. Each contract is a binding agreement between the government and a contractor that requires compliance in its entirety. Under no circumstances will units change, reduce, or increase the provisions and work specifications of the contract without approval of the contracting officer. All statements of work will be reviewed and coordinated at base level and HQ AFSOC/FM and LG prior to award of contract.

1.6.3. The LG/CC or MXS/CC will appoint, in writing, quality assurance evaluator (QAE) personnel to monitor contractor performance IAW AFMAN 64-108, *Service Contracts*.

1.7. Prevention:

1.7.1. All maintenance personnel, regardless of AFSC, are responsible for identifying corrosion. Upon discovery of corrosion discrepancies that may affect aircraft structural integrity, safety of flight, or equipment serviceability beyond the using workcenter's capability to correct, a structural maintenance (2A7X3) specialist will be dispatched to evaluate the discrepancy. Enter all discrepancies noted during these inspections in the maintenance forms and CAMS.

1.7.2. Aircraft avionics systems and instruments are extremely critical for safety of flight and are no less susceptible to corrosion than any other portion of the aircraft. All avionics work sections must be familiar with, and have available for use, T. O. 1-1-689, *Avionic Cleaning and Corrosion Prevention/Control*. It is the responsibility of avionics maintenance personnel to inspect and clean the pins and sockets of disconnected electrical connectors, black boxes, LRUs, and inside equipment drawers, etc., for corrosion. When corrosion is identified beyond the capability of the shop to correct, request assistance from the structural maintenance shop.

1.7.3. It is not economical to treat minor hardware (screws, nuts, bolts, clamps, etc.) for corrosion. Replace any corroded minor hardware as soon as possible.

1.8. Corrosive Chemical Substance:

1.8.1. A corrosive chemical spill aboard an aircraft is one of the most potentially hazardous situations encountered by maintenance and aircrew personnel.

1.8.2. When a corrosive chemical leak or spill occurs aboard an AFSOC aircraft, immediately perform neutralization and clean up of the chemicals upon landing IAW AFJMAN 24-204 *Preparing Hazardous Materials for Military Air Shipments*. Each unit involved will annotate the debriefing check sheets to ensure prompt notification of the structural maintenance shop. Make entries on the aircraft's forms as to what type of chemical spilled, area contaminated, specific neutralization procedures, and results of corrosion inspection. Expeditious chemical neutralization is essential to prevent structural damage. After neutralization, perform a comprehensive corrosion inspection of the affected area.

1.8.3. Clean aircraft and equipment soiled with fire extinguishing materials as soon as possible after exposure. Do not allow fire extinguishing residue, such as bromochoromethane (CB) or dibromodiflоromethane extinguishing materials, to remain on the equipment for a period of four hours or more. T.O. 1-1-691, *Aircraft Weapons Systems Cleaning and Corrosion Control,* contains specific agent removal procedures. If the aircraft or equipment is impounded as a result of an accident, the accident investigation board shall consider the rapid corrosive attack of the fire extinguishing material. They will release the aircraft for removal of this material at the earliest possible time consistent with the accident investigation. Prompt action in accomplishing this procedure can result in savings of considerable man-hours and materiel.

1.9. Protective Coatings:

1.9.1. Application of quality coatings usually provides protection of aircraft and AGE surfaces. There are corrosion preventative compounds (CPC) and many types of inorganic coatings available to protect unpainted metals. Choice of the proper protective coatings depends upon technical order requirements, type of metal, available facilities, environmental conditions, and operating locations of the equipment. There are many more variables to take into consideration when choosing the proper coating; therefore, structural maintenance personnel must exercise sound judgement. Total repainting of aircraft is not authorized due to federal, state, and local environmental restrictions and lack of proper facilities. When corrosion treatment is beyond the workcenter's capability, request assistance IAW T.O. 00-25-107, *Maintenance Assistance*.

1.10. Aerospace Ground Equipment (AGE):

1.10.1. The determining factor of the success of an AGE corrosion prevention and control program is emphasis applied to it. AGE T.O.s and the applicable equipment T.O.s contain adequate guidance for an effective corrosion prevention and control program.

1.10.2. It is the responsibility of each workcenter supervisor to establish and enforce an effective program for assigned AGE equipment. Schedule all corrosion repair or repainting that is beyond the responsible workcenter's capability with the Structural Maintenance Element.

1.10.3. Apply markings IAW T.O. 35-1-3, *Corrosion Prevention, Painting and Marking of USAF Support Equipment (SE)*. Markings may be applied in paint or vinyl.

1.10.4. The use of sprayable corrosion preventive compounds (CPC) is encouraged.

1.11. Mobility Equipment:

1.11.1. Mobility equipment that requires markings IAW AFI 10-403, *Deployment Planning,* will have the mobility markings applied using color (flat black-37038) or (semigloss olive drab-24087). Markings may be applied in paint or vinyl.

1.12. Training:

1.12.1. Units will provide all (2AXXX) aircraft maintenance personnel (excluding AFSC 2A7X3 Aircraft Structural Maintenance, those performing administrative, supply, and manning duties) with corrosion training. Training frequency will consist of annual familiarization. Corrosion training will be documented in CAMS.

1.12.2. Training curricula will include, but is not limited to:

1.12.2.1. Corrosion identification procedures and techniques.

1.12.2.2. Knowledge of aircraft and equipment corrosion susceptible areas.

1.12.2.3. Reporting and documenting procedures for identified corrosion.

1.12.2.4. Proper selection and use of sealant for corrosion prevention.

1.12.2.5. Proper selection and use of corrosion preventive compounds.

Chapter 2

Aircraft Paint Requirements

2.1. General:

2.1. Send deviation request IAW T.O. 1-1-4, *Exterior Finishes, Insignia and Markings Applicable to USAF Aircraft*, signed by Maintenance Commander or Logistics Group Commander to HQ AFSOC/LGMW prior to application of any insignias or markings not authorized by this instruction. Include exact reference dimensions and two copies of 8 by 10-inch color photographs depicting the proposed location and surrounding area with the request. (Colored digital pictures can be used in lieu of color photographs).

2.1.1. The 1 SOS is authorized to display the logo "Stray Goose" on the vertical stabilizer of unit aircraft. Use grey color # 36293.

2.1.2. Remove unauthorized markings applied on aircraft at the earliest opportunity.

2.1.3. Remove all command markings from aircraft prior to permanent transfer from AFSOC. This does not apply to aircraft being sent to permanent storage facilities.

2.2. Fixed Wing Aircraft: (All coatings will be polyurethane MIL-C-85285)

2.2.1. Fuselage: Dark grey (36118) from top of aircraft wrapped down to water line 159. Light grey (36293) will cover the rest. Feather dark grey into light grey.

2.2.2. Wings:

2.2.2.1. Top: Dark grey (36118)

2.2.2.2. Bottom: Light grey (36293) wrap dark grey around leading edge and feather into light.

2.2.3. Vertical Stabilizer: Dark grey (36118)

2.2.4. Engine Nacelles: Dark grey (36118)

2.2.5. External Fuel Tanks/Air Refueling Pods/Pylons:

2.2.5.1. Top: Dark grey (36118) wrapped around to water line 215.6.

2.2.5.2. Bottom: Light grey (36293) Feather dark grey into light grey.

2.2.5.3. Pylons: Dark grey (36118)

2.2.6. All exterior markings will be the opposite color grey.

2.2.7. AC-130H/U: All gun blast diffusers will be painted black.

2.3. Rotary Wing: (All coatings will be polyurethane MIL-C-85285)

2.3.1. MH-53J/M: Dark grey (36118)

2.3.2. UH-1N: Painted IAW T.O. 1-1-4.

2.3.3. All exterior makings will be black (37038).

Chapter 3

Flight Deck Paint Requirements. (All coatings will be polyurethane MIL-C-85285)

3.1. Fixed Wing Aircraft:

3.1.1. AC-130H, MC-130P, MC-130E: Black (37038)

3.1.2. C-130E, AC-130U, MC-130H: Dark grey (36118)

3.1.2.1. Battle Management Center: Black (37038)

3.1.2.2. MC-130H Window posts: Black (37038)

3.2. Rotary Wing:

3.2.1. MH-53J:

3.2.1.1. Cockpit: Black (37038)

3.2.1.2. Cabin: Grey (16251)

Chapter 4

Aircraft Reconditioning

4.1. General

4.1.1. Each unit is responsible for developing budgeting, cost, scheduling, and accomplishing their own programs. The purpose of reconditioning is to prevent corrosion. Cleaning is the most important factor to prevent corrosion.

4.1.2. Any awaiting maintenance and/or inspections may be performed in conjunction with reconditioning.

4.1.3. Manloading aircraft is encouraged to be used to complete intricate interior cleaning and inspecting to ensure corrosion is detected and repaired.

4.1.4. Units will maintain aircraft appearance with minimum loss of aircraft availability.

4.1.5. All Group Commanders must ensure operators and maintainers share equal responsibility for the cleanliness, appearance, and serviceability of aircraft interiors. It is everyone's responsibility to maintain the integrity of aircraft appearance.

Chapter 5

Aircraft Markings and Nose Art:

5.1. Nose Art

5.1.1. May be applied to the forward area of the fuselage on AFSOC aircraft as specified below when approved by the wing/group commander. Do not use squadron or MAJCOM identification. The nose art selected for each aircraft shall:

5.1.2. Be distinctive, symbolic, and designed in good taste.

5.1.3. Enhance unit pride.

5.1.4. Be representative of the unit.

5.1.5. Be gender neutral.

5.1.6. Paints used must be lusterless.

5.2. Aircraft Markings:

5.2.1. Refer to attachments 1-4 for specifications and markings for specific aircraft. The markings in this instruction have been coordinated and approved with Warner Robins ALC and Headquarters USAF.

5.2.2. Naming of aircraft must be coordinated through MAJCOM to HQ USAF/CV for final approving authority IAW AFI 21-105, *Aerospace Equipment Structural Maintenance,* para 5.7.

ALAN J. NIEDBALSKI, Col, USAF
Director of Logistics

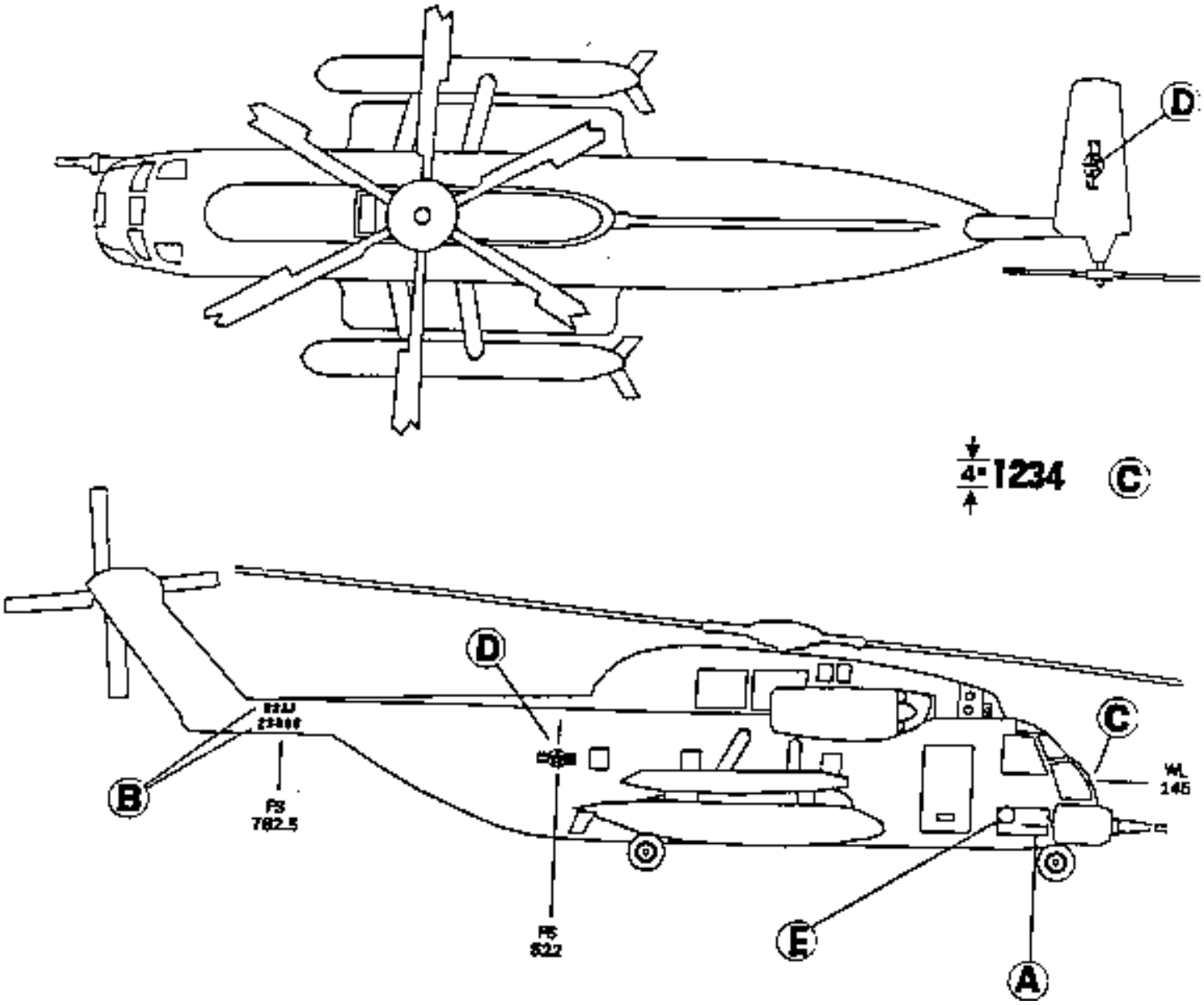
Attachment 1

H-53 Specifications

Fig. A1.1. H-53 Specifications.

Designator	Marking	Location	Size	Color
A	Crew Chief	Right side of fuselage only. Centered on electronics bay, top edge of letters and numbers on WL 110. Vinyl authorized.	1 ¾ inch	37038
B	USAF and Station Radio Call Numbers	Letters above numbers, one-inch space in between, vertically centered on tail pylon aft of FS 728.5.	6 inch	37038
C	Station Numbers (Last four digits of aircraft serial number)	On nose of aircraft, centered on butt line 0 and 145.	4 inch	37038
D	National Star Insignia	Centered on FS 522 and WL 151. Centered on FS 864 and FBL 60.	15 inch	37038
E	Nose Art	Upper left corner of electronics bay, right side of fuselage.	Not to exceed 2 square feet	37038

Attachment 1, cont'd



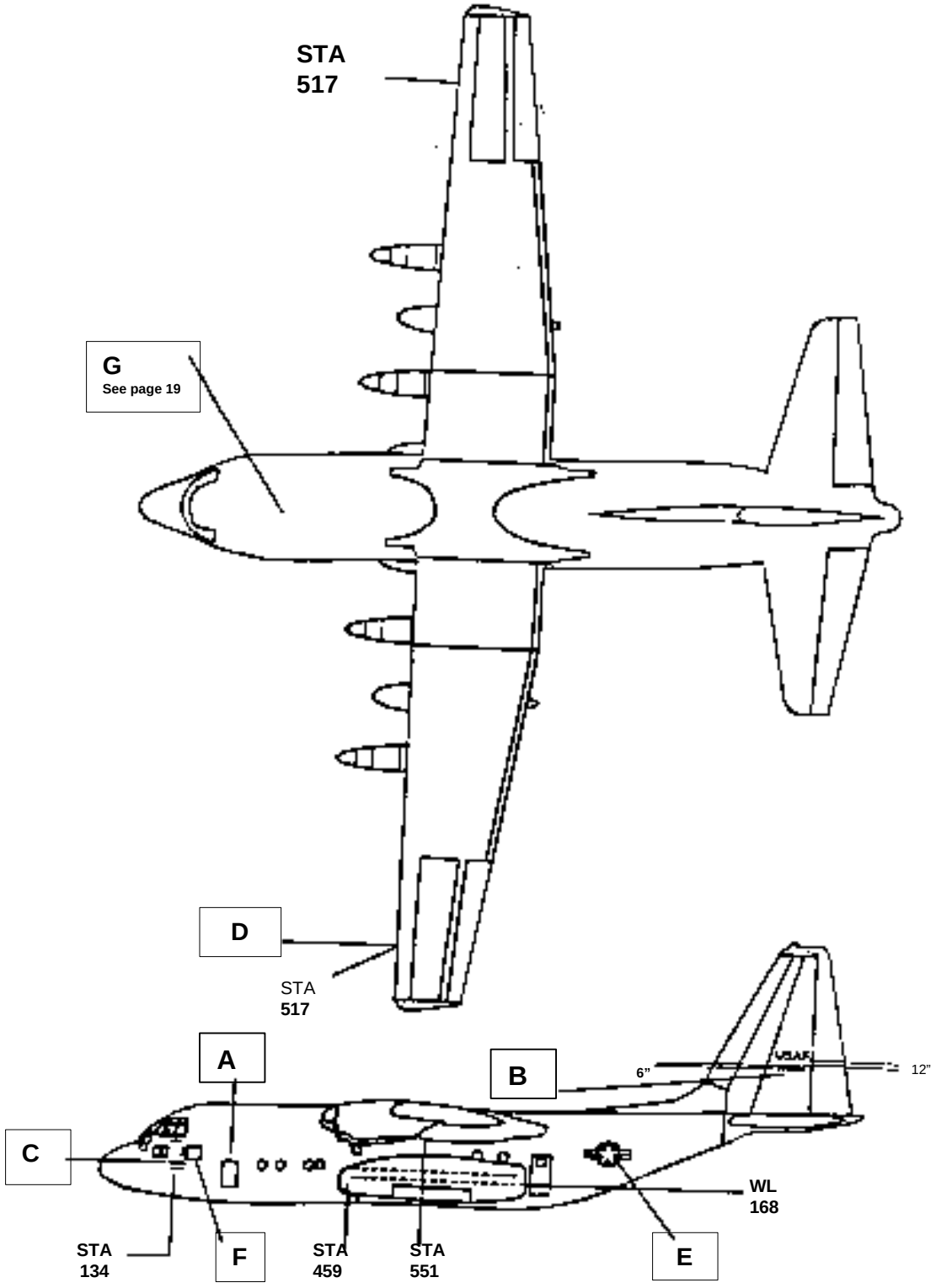
Attachment 2

C-130 Specifications

Fig. A2.1. C-130 Specifications.

Designator	Markings	Location	Size	Color
A	Crew Chief	Directly above and centered on crew entrance door. Note: AC-130H; Six inches forward of paratroop door with bottom of block parallel with top of door. (See page 18) Vinyl authorized.	1 ¾ inch	36293
B	USAF and Aircraft Radio Call Numbers	Both sides of vertical stabilizer. USAF 12 inches above tail call number and centered; numbers 60 inches above horizontal stabilizer.	6 inch	36293
C	Station numbers (last four digits of aircraft serial number)	Nose of aircraft, right and left side. Place to edge of numbers on WL 200 and leading edge at FS 132.	6 inch	36293
D	Ice Detection	See paint drawing # 93104893	See drawing	37038
E	National Star Insignia	See paint drawing # 8226763	15 inch	36293
F	Nose Art	Left side of fuselage. 33 inches aft and 13 inches above line extending parallel to bottom of pilot's lower kick window. Note: AC-130H; Centered on intersection of FS 116.65 and WL 164.5 (See page 18)	Not to exceed four feet by four feet square	Lusterless paint
G	Refueling Marking (Radio Call Number)	Aft edge of UARRSI dubbler panel. Full aircraft serial number. (i.e. 69-6575)	4 inch	37925

Attachment 2, cont'd



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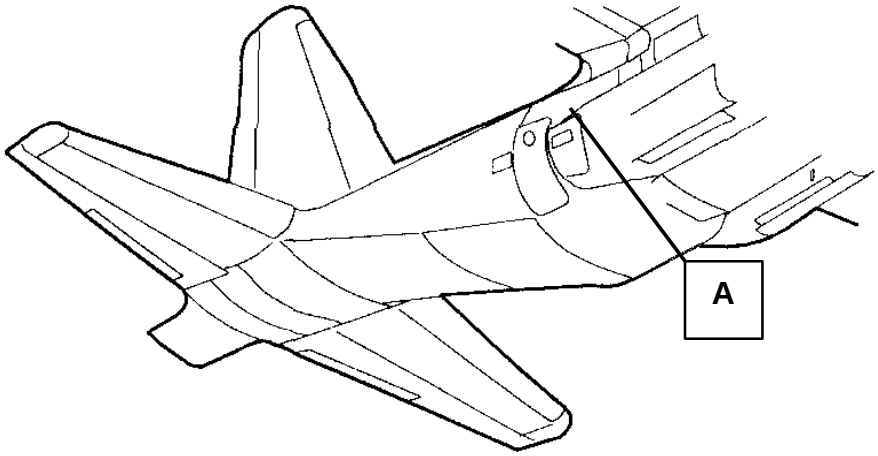
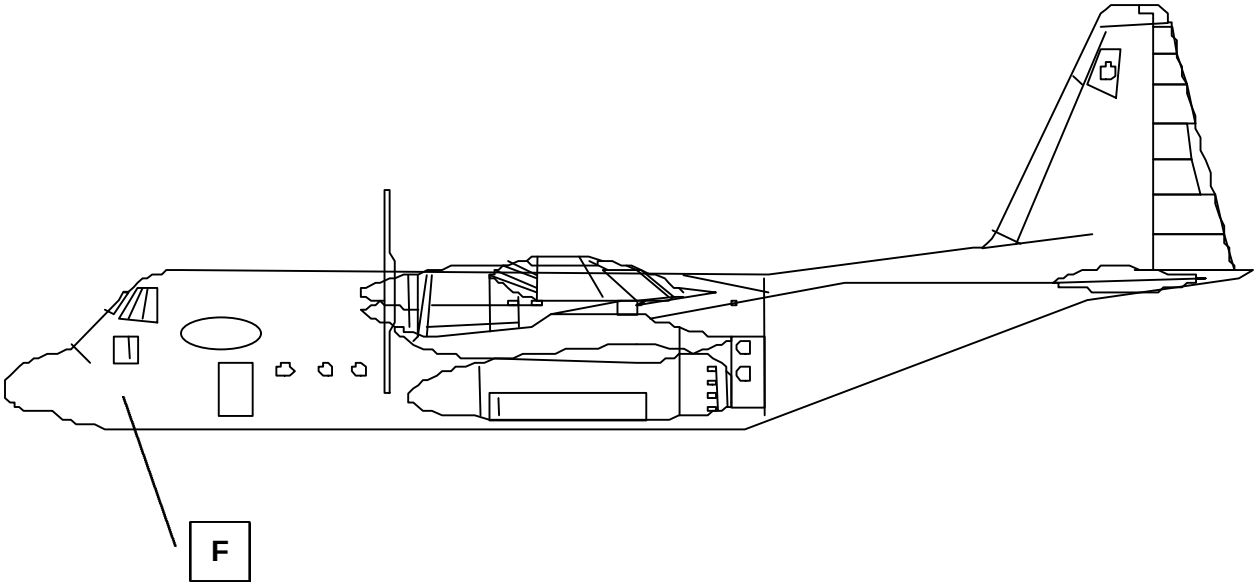
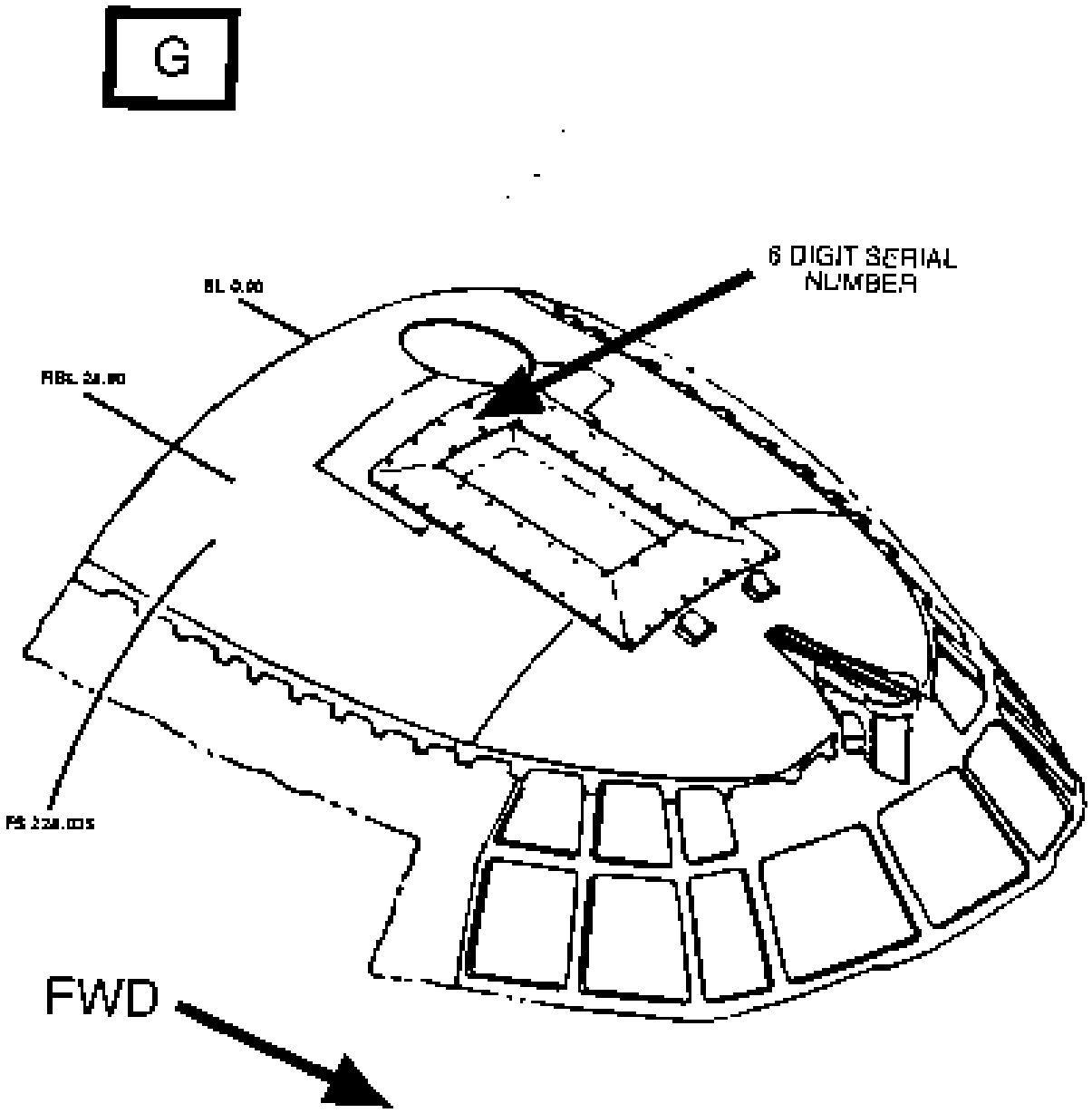




AC-130H

Attachment 2, cont'd



Attachment 3

UH-1N Specifications

Fig. A3.1. UH-1N Specifications.

Designator	Marking	Location	Size	Color
A	Crew Chief	Center below Pilot Crew door Vinyl authorized.	1 inch	37038
B	USAF and Last 5 digits of Aircraft Serial Number	Both sides Center Horizontal and Vertical on tail	6 inch	37038
C	Station Numbers (Last four digits of aircraft serial numbers)	Centered 2” below Glide Scope Antenna	4 inch	37038
D	National Star Insignia	Both sides of tail boom, 5” aft boom attach bulkhead, centered on tail boom centerline	15 inch	37038
E	Nose Art	Centered on Pilot and Co-pilot doors	Not to exceed 2 square feet	37038
F	Anti-glare	Above BL 38R and 38L and WL 33		37038

Attachment 3, cont'd